

Preliminary Amendment

UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Jerry B. Roberts

Serial No.
(a divisional application of
application Serial No. 08/589,930,
filed September 30, 1997;
Allowed December 14, 2000

Art Unit: 2673

Examiner: Lao, L.

Filed: Herewith

For: **METHOD OF AND APPARATUS FOR THE ELIMINATION OF THE EFFECTS OF
INERTIAL INTERFERENCE IN FORCE MEASUREMENT SYSTEMS, INCLUDING
TOUCH-INPUT COMPUTER AND RELATED DISPLAYS EMPLOYING TOUCH
FORCE LOCATION MEASUREMENT TECHNIQUES**

Hon. Commissioner of Patents
and Trademarks
Washington, DC 20231

Dear Sir:

This application is a divisional application of the above-identified parent application.

The claims of this divisional application are as follows:

- 1. A method of measuring force and/or torque to be applied to a mechanically movable or disturbable system, including, where desired, objects associated therewith and portions of force measuring apparatus itself, that comprises, sensing one or more components of force and/or torque applied to the system by deliberate forces acting thereupon to provide force and/or torque measurements uncorrected by inertial interference motion effects that arise; deriving time derivatives including at least a set of the second order derivatives of the uncorrected force measurements and subtracting the same in different combinations of each order in turn from each channel of uncorrected force measurement, with coefficients of combination chosen such that the resulting sums reflect the desired force measurements substantially free of inertial motion interference errors. --
- 2. A method of measuring force and/or torque to be applied to a mechanically movable or disturbable system, including, where desired, objects associated therewith and portions of force measuring apparatus itself, that comprises, sensing one or more components of force and/or torque applied to the system by deliberate forces acting thereupon to provide force and/or torque measurements uncorrected by inertial interference motion effects that arise;

intentionally moving and disturbing the system in various ways while the said deliberate forces ultimately to be measured are not applied and are allowed to remain at zero, in order to generate measurements that enable calibration of the system that renders the same less prone to force measurement errors due to motions of the type created by said moving and disturbing. --

--3. Apparatus for measuring force and/or torque to be applied to a mechanically movable or disturbable system, including, where desired, objects associated therewith and portions of force measuring apparatus itself, having, in combination, means for sensing one or more components of force and/or torque applied to the system by forces acting thereupon to provide force and/or torque measurements uncorrected for inertial interference motion effects that arise; means for sensing lineal and/or rotational acceleration of the system in response to such inertial interference motions; and means for correcting the uncorrected force and/or torque measurements in response to the acceleration sensing to achieve elimination from the measurements of the effects of such inertial interference. --

--4. Apparatus as claimed in claim 3 and in which said uncorrected force measurements are made and said acceleration is sensed for all relevant degrees of freedom of motion in a plurality of respective channels, and means is provided for adding different linear combinations of the acceleration-sensing channels in turn to each channel of force measurement, with coefficients of combinations chosen such that the resulting sums reflect the desired force measurements substantially free of inertial motion interference errors. --

--5. Apparatus as claimed in claim 4 and in which means is provided to derive time derivatives including at least a set of the second order derivatives of the uncorrected force measurements and to enter the same in different linear combinations of each order in turn in each channel of force measurement further to correct the same. --

--6. Apparatus as claimed in claim 5 and in which calibration means is provided including means for intentionally moving and disturbing the system in various ways while the force ultimately to be measured is allowed to remain at zero, with means for generating a correction matrix the elements of which comprise the desired coefficients of combination to achieve the corrections of the force measurements in each channel. --

--7. Apparatus as claimed in claim 6 and in which means is provided for deriving the coefficients of combination for the correcting channels at the display. --

--8. Apparatus as claimed in claim 3 and in which the mechanically movable or disturbable system is a weighing system. --

REMARKS

The allowed parent application contains claims directed to touch panel display systems. The method of the invention, however, is more generically applicable, as pointed out in the original specification, (bottom of pages 1 and 66, for example) to force measuring applications in movable mechanical systems generally.

Claims 1 and 2 herein therefore track the allowed touch panel display method claims 13 and 14, respectively, but more generically recite use in a mechanically movable or disturable system as to which the cited prior art of the D'Angelo patent is no more anticipatory than to the allowed touch panel display claims—all other claim limitations being identically incorporated into the claims of this divisional application.

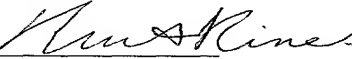
Apparatus claims 3-7 similarly track allowed claims 22-25, and claim 8 is specific to the weighing embodiment also taught in the application.

It is accordingly believed that this divisional application is thus in condition for allowance, and such action is therefore respectfully requested.

Any costs required by this filing, and/or for any required extensions of time, petition for which is hereby made, may be charged to Deposit Account No. 18-1425 of the undersigned attorney.

Respectfully submitted,

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